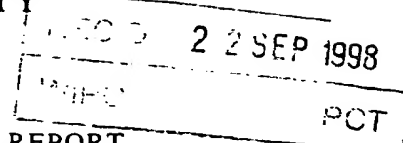


PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)



Applicant's or agent's file reference P50593	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US97/20992	International filing date (day/month/year) 14 NOVEMBER 1997	Priority date (day/month/year) 18 NOVEMBER 1996
International Patent Classification (IPC) or national classification and IPC Please See Supplemental Sheet.		
Applicant SMITHKLINE BEECHAM CORPORATION		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of — sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 04 JUNE 1998	Date of completion of this report 19 AUGUST 1998
Name and mailing address of the IPEA-US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer F. PIERRE VANDERVEGT
Facsimile No. (703) 305-3230	Telephone No. (703) 308-0196

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US97/20992

I. Basis of the report

1. This report has been drawn on the basis of *(Substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments):*

- ☒ the international application as originally filed.
- ☒ the description, pages 1-38 , as originally filed.
pages NONE , filed with the demand.
pages NONE , filed with the letter of _____
pages _____ , filed with the letter of _____
- ☒ the claims, Nos. 1-24 , as originally filed.
Nos. NONE , as amended under Article 19.
Nos. NONE , filed with the demand.
Nos. NONE , filed with the letter of _____
Nos. _____ , filed with the letter of _____
- ☒ the drawings, sheets/~~fig~~ NONE , as originally filed.
sheets/~~fig~~ NONE , filed with the demand.
sheets/~~fig~~ NONE , filed with the letter of _____
sheets/~~fig~~ _____ , filed with the letter of _____

2. The amendments have resulted in the cancellation of:

- ☒ the description, pages NONE
- ☒ the claims, Nos. NONE
- ☒ the drawings, sheets/~~fig~~ NONE

3. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box Additional observations below (Rule 70.2(c)).

4. Additional observations, if necessary:

NONE

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.
PCT/US97/20992

III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The question whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been and will not be examined in respect of:

- ☐ the entire international application.
- ☒ claims Nos. 15-16, 18-20, 22-24

because:

- ☐ the said international application, or the said claim Nos. _ relate to the following subject matter which does not require international preliminary examination (*specify*).

- ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. _ are so unclear that no meaningful opinion could be formed (*specify*).

- ☐ the claims, or said claims Nos. _ are so inadequately supported by the description that no meaningful opinion could be formed.

- ☒ no international search report has been established for said claims Nos. 15-16, 18-20, 22-24.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US97/20992

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. STATEMENT**

Novelty (N)	Claims <u>1-14, 17, 21</u>	YES
	Claims <u>NONE</u>	NO
Inventive Step (IS)	Claims <u>1-14, 17, 21</u>	YES
	Claims <u>NONE</u>	NO
Industrial Applicability (IA)	Claims <u>1-14, 17, 21</u>	YES
	Claims <u>NONE</u>	NO

2. CITATIONS AND EXPLANATIONS

Claims 1-14, 17 and 21 meet the criteria set out in PCT Article 33(2)-(4), because the prior art does not teach or fairly suggest the claimed FabD polypeptide of SEQ ID NO:2, polynucleotides encoding same or vectors and cells containing said polynucleotides. Nor does the prior art teach the use of FabD polypeptides for inducing an immune response in a mammal. The claimed inventive concept has industrial applicability.

----- NEW CITATIONS -----

NONE

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US97/20992

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

~~Sheet 10~~

CLASSIFICATION:

The International Patent Classification (IPC) and/or the National classification are as listed below:

IPC(6): A61K 39/09; C12N 5/10, 15/31; A01N 37/18; C07H 21/04 and US Cl.: 536/23.7; 435/325, 320.1; 530/403; 514/2; 424/185.1

PATENT COOPERATION TREATY

PCT

NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

United States Patent and Trademark
Office
(Box PCT)
Crystal Plaza 2
Washington, DC 20231
ETATS-UNIS D'AMERIQUE

in its capacity as elected Office

Date of mailing (day/month/year) 02 July 1998 (02.07.98)	
International application No. PCT/US97/20992	Applicant's or agent's file reference P50593
International filing date (day/month/year) 14 November 1997 (14.11.97)	Priority date (day/month/year) 18 November 1996 (18.11.96)
Applicant GENTRY, Daniel, Robert et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:
04 June 1998 (04.06.98)

☐ in a notice effecting later election filed with the International Bureau on:

2. The election ☒ was

☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer <p style="text-align: center;">N. Masson</p> Telephone No.: (41-22) 338.83.38
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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : A61K 39/09, C12N 5/10, 15/31, A01N 37/18, C07H 21/04	A1	(11) International Publication Number: WO 98/22133 (43) International Publication Date: 28 May 1998 (28.05.98)
(21) International Application Number: PCT/US97/20992 (22) International Filing Date: 14 November 1997 (14.11.97) (30) Priority Data: 60/031,160 18 November 1996 (18.11.96) US (71) Applicant (for all designated States except US): SMITHKLINE BEECHAM CORPORATION [US/US]; One Franklin Plaza, Philadelphia, PA 19103 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): GENTRY, Daniel, Robert [US/US]; 1378 Sheep Hill Road, Pottstown, PA 19465 (US). LONSDALE, John, Timothy [GB/US]; 407 Edgewood Drive, Exton, PA 19341 (US). PAYNE, David, John [GB/US]; 618 Waterfall Way, Phoenixville, PA 19460 (US). PEARSON, Stewart, Campbell [GB/US]; 75 Highpoint Drive, Berwyn, PA 19313 (US). ALLER, Glenn, Van [US/US]; 799 Gibraltar Road, Reading, PA 19606 (US). (74) Agents: GIMMI, Edward, R. et al.; SmithKline Beecham Corporation, Corporate Intellectual Property, UW2220, 709 Swedeland Road, P.O. Box 1539, King of Prussia, PA 19406-0939 (US).		(81) Designated States: CA, JP, US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
(54) Title: NOVEL FabD		
(57) Abstract		
<p>The invention provides FabD polypeptides and polynucleotides encoding FabD polypeptides and methods for producing such polypeptides by recombinant techniques. Also provided are methods for utilizing FabD polypeptides to screen for antibacterial compounds.</p>		

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DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/20992

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) : A61K 39/09; C12N 5/10, 15/31; A01N 37/18; C07H 21/04

US CL : 536/23.7; 435/325, 320.1; 530/403; 514/2; 424/185.1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 536/23.7; 435/325, 320.1; 530/403; 514/2; 424/185.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS, DIALOG biotech cluster

terms: Streptococcus, pneumoniae, malonyl, FabD, fatty acid, biosynthesis

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ROCK, C.O. et al. Escherichia coli as a model for the regulation of dissociable (Type II) fatty acid biosynthesis. Biochimica et Biophysica Acta. July 1996, Vol. 1302, pages 1-16, see entire document.	1-14, 17, 21
A	HEATH, R. J. et al. Regulation of fatty acid elongation and initiation by acyl-acyl carrier protein in Escherichia coli. J. Bio. Chem. 26 January 1996, Vol. 271, No. 4, pages 1833-1836, see entire document.	1-14, 17, 21

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
A document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
B earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
L document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*Z* document member of the same patent family
O document referring to an oral disclosure, use, exhibition or other means	
P document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

05 MARCH 1998

Date of mailing of the international search report

20 MAR 1998

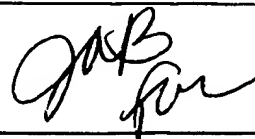
Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

F. PIERRE VANDERVEGT

Telephone No. (703) 308-0196



INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/20992

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:
1-14, 17, 21

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US97/20992

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1.

Group I, claim(s) 1-14, 17 and 21, drawn to a FabD polynucleotide, vectors and host cells containing same, a method for producing protein therewith, FabD polypeptide and a method of treatment using same.

Group II, claim(s) 15-16 and 18, drawn to antibody to FabD and a method of treatment using same.

Group III, claim 19, drawn to a method of diagnosis using FabD polynucleotides.

Group IV, claim 20, drawn to a method of identifying compounds which interact with FabD polypeptide.

Group V, claim 22, drawn to a method of nucleotide immunization using FabD polynucleotide.

Group VI, claim 23, drawn to a different polynucleotide sequence.

Group VII, claim 24, drawn to a different polynucleotide sequence.

The inventions listed as Groups I-VIII do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The polynucleotide sequences of Groups I, VII and VIII are defined by different polynucleotide sequences and are therefore materially different molecules. The polynucleotides and polypeptide of Group I have different modes of action than the antibody of Group III and do not share a common core structure with the antibody. The methods of Groups I and IV-VI are materially different processes which require different compounds for their practice and do not share common steps. Accordingly, the claims are not so linked by a special technical feature within the meaning of PCT rule 13.2 so as to form a single inventive concept.